



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/736,945 | 12/15/2003 | James R. Geschwindt | C-2950 | 5524 |
| 7590 | 04/27/2010 | | EXAMINER | |
| M. P. Williams 210 Main Street Manchester, CT 06040 | | | LAIOS, MARIA J | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1795 | |
| | | | MAIL DATE | DELIVERY MODE |
| | | | 04/27/2010 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/736,945 | GESCHWINDT ET AL. | |
| | Examiner | Art Unit | |
| | MARIA J. LAIOS | 1795 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on _____.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-14 is/are pending in the application.
 4a) Of the above claim(s) 3, 5-8, 10 is/are withdrawn from consideration.
 5) Claim(s) ____ is/are allowed.
 6) Claim(s) 1,2,4,9 and 11-14 is/are rejected.
 7) Claim(s) ____ is/are objected to.
 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on ____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____. | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

1. This office action is in response to the remarks filed 15 January 2010. Claims 1-14 are currently pending of which claims 3, 5-8 and 10 were previously withdrawn from consideration for being directed to a non elected species.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 2, 4, 9 and 12 rejected under 35 U.S.C. 102(e) as being anticipated by Yoshimoto et al. (US 2003/0104265 A1).

As to claim 2, Yoshimoto et al. discloses a fuel cell power plant (Figure 1); comprising a plurality of fuel cells (2-fuel cell stack); each fuel cell having at least one fuel flow field (figure 5) and each fuel flow field having a fuel inlet (1a); a fuel gas supply pipe (fuel that enters section 6a); a fuel inlet manifold (6-figure 2) in fluid communication with all of the fuel flow field inlets (Figure 1) and an inlet fuel gas distributor (area below 4) having a fuel inlet chamber (area around 6a) and including a permeable baffle (4 and 7) through which fuel from said chamber is flowed into the fuel inlet manifold.

As to claim 4, Yoshimoto et al. discloses a permeable baffle (4 and 7) as a solid with a plurality of small orifices (porous body 7).

As to claim 9, Yoshimoto et al. discloses a fuel cell with fuel entering the system, being obstructed by piercing element (4/7), then turning 90 degrees because of the wall (figure 3).

As to claim 12, Yoshimoto et al. discloses a fuel gas inlet distributor (6 of figure 2) comprising a first internal fuel manifold (6a of figure 2) which receives fuel from the supply area (6a) a second manifold area (6 of figure 2) which receives fuel through the baffle (4/7) and of the first fuel manifold (located below the baffle).

Claim Rejections - 35 USC § 103

4. Claims 1 and 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshimoto et al. (US 2003/0104265 A1) in view of Reiser (US 2002/0076582 A1) and LaPierre et al.

As to claim 1, Yoshimoto et al. discloses a fuel cell power plant (Figure 1); comprising a plurality of fuel cells (2-fuel cell stack); each fuel cell having at least one fuel flow field (figure 5) and each fuel flow field having a fuel inlet (1a) and an outlet (traversing the fuel cell stack); a fuel gas supply pipe (fuel that enters section 6a); a fuel inlet manifold (6-figure 2) in fluid communication with all of the fuel flow field inlets (Figure 1) and an inlet fuel gas distributor (area below 4) having a fuel inlet chamber (area around 6a) and including a permeable baffle (4 and 7) though which fuel from said chamber is flowed into the fuel inlet manifold.

However Yoshimoto et al. does not disclose a fuel recycle system for providing recycle fuel from the fuel outlets into the fuel inlet manifold downstream of the permeable baffle; an exhaust valve or a controller configured to open the valve during startup in order to purge the gas that is which the fuel cell system.

Reiser et al. discloses a fuel cell system and teaches the use of a fuel recycle system (150) which provides fuel exiting the stack to the entrance but does not disclose the recycle fuel is entering down stream of the baffle. However it would have been obvious to one of ordinary skill in the art at the time of the invention to send the recycle fuel downstream of the baffle of Yoshimoto et al because the baffle in order to provide an addition fuel for the cells. Furthermore, Reiser et al. discloses an exhaust valve (172) which is at the exit of the system. The valve is used during start up in order to purge the gas which is located within the system (Paragraph 32). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the exhaust valve in the system of Yoshimoto et al because this would allow for the gas located within the system to be discharged prior to the start up of the system. Since the valve is downstream of the exiting gas it will be located a distance from the interconnection of the fuel inlet chamber and the supply pipe.

Yoshimoto et al and Reiser fail to explicitly disclose a controller controlling the valve.

LaPierre et al. disclose a controller (150) for controlling the valves during start up. It would have been obvious to one of ordinary skill in the art at the time of the invention to include the controller of LaPierre et al. to the system of Yoshimoto et al modified by Reiser because the controller can adjust the valve to control the flow rate of the fuel (col. 17 lines 57- col. 18 lines 5)

As to claim 13, Yoshimoto et al. discloses a fuel cell power plant (Figure 1); comprising a plurality of fuel cells (2-fuel cell stack); each fuel cell having at least one fuel flow field (figure 5) and each fuel flow field having a fuel inlet (1a); a fuel gas supply pipe (fuel that enters section 6a); a fuel inlet manifold (6-figure 2) in fluid communication with all of the fuel flow field inlets

(Figure 1) and an inlet fuel gas distributor (area below 4) having a fuel inlet chamber (area around 6a) and including a permeable baffle (4 and 7) through which fuel from said chamber is flowed into the fuel inlet manifold.

Reiser et al. discloses an exhaust valve (172) which is at the exit of the system. The valve is used during start up in order to purge the gas which is located within the system (Paragraph 32). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the exhaust valve in the system of Yoshimoto et al because this would allow for the gas located within the system to be discharged prior to the start up of the system. Since the valve is downstream of the exiting gas it will be located a distance from the interconnection of the fuel inlet chamber and the supply pipe.

Reiser fails to explicitly disclose a controller controlling the valve.

LaPierre et al. disclose a controller (150) for controlling the valves during start up. It would have been obvious to one of ordinary skill in the art at the time of the invention to include the controller of LaPierre et al. to the system of Yoshimoto et al modified by Reiser because the controller can adjust the valve to control the flow rate of the fuel (col. 17 lines 57- col. 18 lines 5)

5. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshimoto et al. (US 2003/0104265 A1) in view of Reiser (US 2002/0076582 A1).

As to claim 14 Yoshimoto et al. discloses a fuel cell power plant (Figure 1); comprising a plurality of fuel cells (2-fuel cell stack); each fuel cell having at least one fuel flow field (figure 5) and each fuel flow field having a fuel inlet (1a); a fuel gas supply pipe (fuel that enters section

6a); a fuel inlet manifold (6-figure 2) in fluid communication with all of the fuel flow field inlets (Figure 1) and an inlet fuel gas distributor (area below 4) having a fuel inlet chamber (area around 6a) and including a permeable baffle (4 and 7) though which fuel from said chamber is flowed into the fuel inlet manifold. Yoshimoto et al. does not disclose a fuel recycle system for providing recycle fuel from the fuel outlets into the fuel inlet manifold downstream of the permeable baffle.

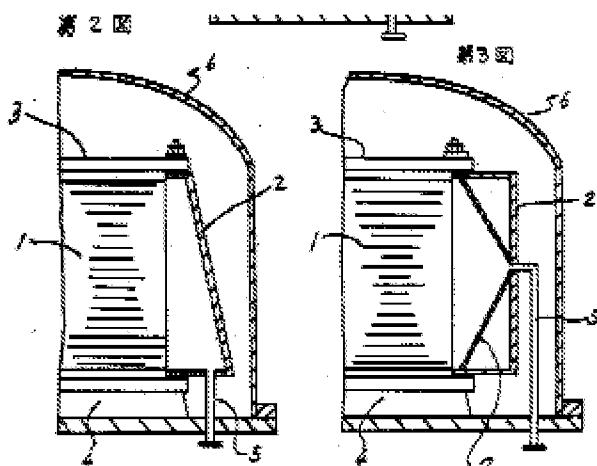
Reiser et al. discloses a fuel cell system and teaches the use of a fuel recycle system (150) which provides fuel exiting the stack to the entrance but does not disclose the recycle fuel is entering down stream of the baffle. However it would have been obvious to one of ordinary skill in the art at the time of the invention to send the recycle fuel downstream of the baffle of Yoshimoto et al. because one of skill in the art would be capable of entering the recycle stream down stream of the baffle because this would ensure a mixture of fresh fuel and recycled fuel.

6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshimoto et al. (US 2003/0104265 A1) as applied to claims 2 and 4 above, and further in view of Izumitani (JP 57-130330).

As to claim 11, Yoshimoto et al. discloses a fuel cell power plant (Figure 1); comprising a plurality of fuel cells (2-fuel cell stack); each fuel cell having at least one fuel flow field (figure 5) and each fuel flow field having a fuel inlet (1a); a fuel gas supply pipe (fuel that enters section 6a); a fuel inlet manifold (6-figure 2) in fluid communication with all of the fuel flow field inlets (Figure 1) and an inlet fuel gas distributor (area below 4) having a fuel inlet chamber (area around 6a) and including a permeable baffle (4 and 7) though which fuel from said chamber is

flowed into the fuel inlet manifold. Yoshimoto et al. does not disclose the fuel inlet chamber as tapered, becoming smaller at greater distances from one end of the fuel cell,

. Izumitani discloses a cell stack (1) and with a manifold (2) and shows a tapered shape is formed between the cell and the manifold as a result the gas supplied to the unit cells is equalized (Abstract and Figures 2 and 3 below). It would have been obvious to one of ordinary skill in the art at the time of the invention to taper the inlet of Yohsimoto et al because Izumitani teaches this would ensure gas supplied to the cells is equalized.



Response to Arguments

7. Applicant's arguments, see page 1 with respect to the rejection(s) of claim(s) 2 under 35 USC 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of newly found art.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARIA J. LAIOS whose telephone number is (571)272-9808. The examiner can normally be reached on 11am-7pm Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on 571-272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. J. L./
Examiner, Art Unit 1795

/Dah-Wei D. Yuan/
Supervisory Patent Examiner, Art Unit 1795